

**U. S. ENVIRONMENTAL PROTECTION AGENCY**  
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OFFICE OF  
PREVENTION, PESTICIDES  
AND TOXIC SUBSTANCES

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**MEMORANDUM**

**SUBJECT:** Environmental Fate and Effects Division Revised Science Chapter for the **Diazinon**  
Reregistration Eligibility Decision Document.

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Attached is the revised EFED chapter for diazinon. Risk quotient tables have been revised as per the March 23, 2000 EFED Response to Registrant "Error Comments" for Diazinon. Other revisions include additional information on endangered species, sublethal effects on fish, terrestrial field studies, estimated drinking water concentrations using the index reservoir, a pilot reservoir monitoring study, and

drinking water treatment, for example. Our risk conclusions are all largely the same as in the May 5, 1999 review.

## Data Gaps

**Environmental Fate.** Most environmental fate data requirements for diazinon have been satisfied except:

- C Mobility -- adsorption and desorption studies for degradates (163-1).**  $K_d$  values for oxypyrimidine and diazoxon are an important input to environmental modeling. The data would be needed for predicting surface and ground water concentrations of these degradates.
- C Laboratory volatility study (163-2).** The vapor pressure of diazinon ( $7.3 \times 10^{-5}$  mm Hg) indicates that it may be volatile, but the Henry's Law constant ( $1.1 \times 10^{-7}$ ) indicates lack of volatility from solution. There are measured detections of diazinon and diazoxon in air, fog, and rain. A laboratory volatility study should help assess the probability of diazinon volatilizing from fields.
- Persistence – aerobic soil metabolism, anaerobic aquatic metabolism and aerobic aquatic metabolism studies on degradates (162-1, 162-3, 162-4) .** Data are needed on the half-life of diazoxon and oxypyrimidine. These data will be used to fully characterize the environmental fate and predicted concentrations of these degradates in water resources.

**Water Resources.** EFED believes that adequate data are available to support the conclusions reached for diazinon's impact on surface water quality in urban areas and on major rivers. More information is needed to characterize the impact of the degradates diazoxon and oxypyrimidine and diazinon on ground water and on chlorinated drinking water in diazinon use areas.

- C Small-scale prospective ground-water monitoring study (166-1).** The Agency has requested a small-scale prospective ground-water study to assess the potential of diazinon and the degradates oxypyrimidine and diazoxon to contaminate shallow ground water.
- Finished Drinking Water (non-guideline).** A study to determine occurrence and persistence of diazinon and diazoxon concentrations in chlorinated drinking water in diazinon use areas.

**Ecological Effects.** The ecological toxicity data base is complete except for:

- An early life-stage fish study for freshwater fish (72-4(a)).** At present, the Agency does not have a core guideline study and is relying on supplemental data in which definitive NOAEC and LOAEC were not determined (i.e., effects at lowest test level). Submission of definitive data will enable definitive chronic risk quotients.

- **A Tier 1 or Tier 2 aquatic plant study** (122-2 or 123-2). A study is currently needed with the test species *Lemna gibba* (duckweed). Diazinon has demonstrated phytotoxicity and has been shown to runoff to surface waters.
- **A honey bee** residue on foliage study (141-2). Honeybees can be exposed to diazinon and diazinon is highly toxic to them, based on acute contact testing.
- **Avian acute oral and subacute dietary studies on the degradates, diazoxon and oxypyrimidine** (71-1 and 71-2). Existing data with mammals indicate that diazoxon, although generally short-lived, may be more toxic to birds than parent diazinon. Oxypyrimidine has been shown to be both mobile and persistent.
- **Avian chronic** tests (71-4) on the degradates are reserved pending results of the acute oral and dietary studies.